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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/741,655	12/19/2000	Bernd Ackermann	PHD 99-189 . . .	7073

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
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BRIARCLIFF MANOR, NY 10510

EXAMINER

HANNETT, JAMES M

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/741,655

Applicant(s)

ACKERMANN ET AL.

Examiner

James M Hannett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/19/2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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## **DETAILED ACTION**

### ***Specification***

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

***Claim Rejections - 35 USC § 102***

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**1:** Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,043,621 Culp.

**2:** As for Claim 1, Culp teaches on Column 8, Lines 37-63 and depicts in Figure 11 an actuator having a plurality of piezoelectric drives (32) and a sphere (70) which is rotatable about at least two axes of rotation (40), characterized in that at least two piezoelectric drives (32) have been provided in order to rotate the sphere about at least two axes of rotation (40), the piezoelectric drives being capable of transmitting their power to the sphere in order to rotate this sphere about a respective axis of rotation by friction with the aid of vibration in a tangential direction relative to the surface of the sphere.

**3:** In regards to Claim 2, Culp teaches on Column 8, Lines 58-63 and depicts in Figure 11 that coupled-resonance piezoelectric motors (32) are used as piezoelectric drives, which motors transmit their power to the surface of the sphere in a tangential direction in a first mode of operation, which perform longitudinal vibrations in a second mode of operation, and which can immobilize the sphere in the last position reached in a self-braking manner in the switched-off state. The Lifter piezoelectric portion exerts a vibrating normal force onto the sphere surface. This wave is a longitudinal wave. Furthermore, the tangent piezoelectric portions exert a wave that oscillates parallel to the surface of the sphere and therefore, oscillates in the tangential direction.

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4: In regards to Claim 4, Culp teaches on Column 8, Lines 37-63 and depicts in Figure 11 three orthogonal axes of rotation are available, Three piezoelectric drives (32) are controlled in such a manner that a first piezoelectric drive performs a rotary movement about an axis of rotation, while a second piezoelectric drive, whose tangential plane of vibration extends parallel to this axis of rotation, reduces the friction in the fulcrum of the sphere, which fulcrum is associated with the second drive, and a third drive, disposed in the axis of rotation, stabilizes the axis of rotation in the fulcrum of the sphere in the switched-off state of this third drive with which this fulcrum is associated.

5: As for Claim 5, Culp teaches on Column 8, Lines 51-59 that a contact pressure is exerted on the piezoelectric drives by the sphere, which contact pressure is provided by the weight of the sphere itself.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6: Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,946,127 Nagata in view of USPN 5,043,621 Culp.

7: In regards to Claim 6, Nagata teaches in Figure 1 and teaches on Column 3, Lines 4-14 an arrangement for picking up pictures, characterized in that a sphere of the actuator is adapted to accommodate a camera. Nagata teaches a methods for positioning a spherical camera but does not teach that the camera can be moved using the actuator in Claim 1.

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Culp teaches on Column 8, Lines 37-63 and depicts in Figure 11 an actuator having a plurality of piezoelectric drives (32) and a sphere (70) which is rotatable about at least two axes of rotation (40), characterized in that at least two piezoelectric drives (32) have been provided in order to rotate the sphere about at least two axes of rotation (40), the piezoelectric drives being capable of transmitting their power to the sphere in order to rotate this sphere about a respective axis of rotation by friction with the aid of vibration in a tangential direction relative to the surface of the sphere. Culp teaches this positioning system is superior over other positioning systems that position spherical objects.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the spherical positioning system in the Nagata with the piezoelectric positioning system of Culp in order to allow the camera of Nagata to be better positioned using the superior positioning system of Culp.

**8:** Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,043,621 Culp in view of USPN 4,983,875 Masaki et al.

9: As for Claim 3, Culp teaches the invention as discussed in Claim 1, However, Culp teaches that the piezoelectric elements are located outside of the sphere 70, and does not teach that the elements can be inside the sphere and in contact with an external shell.

Masaki et al teaches on Column 6, Lines 7-30, Column 6, Lines 37-45 and in Figure 7 the use of a camera that can be positioned using a plurality of piezoelectric elements (7). Masaki et al teaches in Figure 2 that a ball 4b can be positioned so that a shell 4a surrounds it. Masaki et al teaches that the piezoelectric elements can be placed in the surface of the base (4a) or in the ball (4c) depending on the application. Masaki et al teaches that this method is advantageous because

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it allows the actuator to be capable of providing a powerful driving force and allows the actuator to be constructed at a low cost.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the piezoelectric elements inside the sphere of Culp and in contact with a shell that surrounds it as taught by Masaki et al in order to allow the actuator to be capable of providing a powerful driving force and allow the actuator to be constructed at a low cost.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPN 6,121,568 Boccadoro et al see Figure 7; USPN 5,416,392 Lee et al see Figure 1C; USPN 5,696,421 Zumeris et al teaches the use of a multi-axis rotation device; USPN 4,727,278 Staufenberg, Jr. et al teaches the use of a piezoelectric multi-axis micro-positioner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M Hannett whose telephone number is 703-305-7880. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James M. Hannett  
Examiner  
Art Unit 2612

JMH  
May 4, 2004

  
WENDY R. GARBER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600